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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

JONES, STEPHEN E

ART UNIT PAPER NUMBER

2817

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/970,351

Applicant(s)

RITCHEY ET AL.

Examiner

Stephen E. Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,16-21,29-36,47 and 48 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37-46 is/are allowed.
- 6) ☒ Claim(s) 1-3,6,7,22-25 and 28 is/are rejected.
- 7) ☒ Claim(s) 8-15,26 and 27 is/are objected to.
- 8) ☒ Claim(s) 1-48 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of species I. (Fig. 2) in Paper No. 7 is acknowledged. Applicant traverses with various arguments as to whether there is a relationship between the species. This is not found persuasive because the different species are to be used in exchange for each other instead of together, so there is no relationship. Also, the various species are independent unobvious variants and applicant even quotes the MPEP that a "disclosed relationship does not prevent restriction". The species include the following unobvious variations: Species I is of a pi attenuator having a series connection of common anode diodes in the signal path; Species II is of a pi attenuator having a series connection of a diode and a capacitor in the signal path; and Species III is of a t-configured attenuator having diodes with a common-cathode connection in the signal path.

Also, applicant argues that the examination of all of the species would not be a serious burden. Applicant's assertion that the examination of all of the species would not be a burden is not convincing. The simultaneous search and examination required for the three species, which each include unobvious variants from the others, would be burdensome since it would be extremely difficult to search and examine all of the variations in one cycle of searching and evaluating the claims.

The requirement is still deemed proper and is therefore made FINAL.

It should further be noted that the examiner agrees with the applicant's assertion that Claims 1, 2, 22, and 23 are presently generic claims.

Applicant indicated that claims 1-3, 6-15, 22-28, and 37-46 read on the elected species.

2. Accordingly, Claims 4-5, 16-21, 29-36, and 47-48 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "third control signal" of Claims 10 and 28 and the "third attenuation control signal" of Claim 43 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

4. The disclosure is objected to because of the following informalities:

On page 10 (line 22), it appears that the term "connect" should read as --  
connected-- to improve the grammatical form.

Appropriate correction is required.

***Claim Objections***

5. Claims 11, 28, and 38 are objected to because of the following informalities:

Regarding Claim 11, the recitation of a "second inductor" is confusing since no "first inductor" has been previously claimed. It appears that the expression would be more clear if "second inductor" read as --first inductor--.

Regarding Claim 28, it appears that the phrase "a first diode" should read as --the first diode-- since the "first diode" was previously described in Claim 26.

Regarding Claim 38, it appears that the phrase "said at least one series diode" should read as --said at least two diodes-- to be consistent since the beginning of the claim which describes the "at least two diodes disposed in a series configuration".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The first six lines of Claim 28 are of redundant subject matter with respect to Claim 26 which renders the claim vague and indefinite since it is not clear whether the redundant subject matter is describing the same elements as Claim 26 or additional elements. Also, the phrase "said fourth diode is coupled to a third control signal"

contradicts the phrase "said fourth diode" is "coupled to said second control signal input" in Claim 26, thus rendering the claim indefinite.

Due to the indefinite nature of the claim, no art rejection could be applied.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, 6-7, 22-25 rejected under 35 U.S.C. 102(b) as being anticipated by the reference "A Low Distortion Pin Diode Switch Using Surface Mount Devices" cited by applicant.

"A Low Distortion Pin Diode Switch Using Surface Mount Devices" (Fig. 6) teaches an SPDT switch including: an RF input (e.g. port 1) and an output (e.g. port 3); pin diodes (D1 and D2) are in a network configuration in the signal path between the input and output (Claim 2); the diodes are connected with a common anode node (Claim 6); inherently the cathodes would have a constant DC bias voltage since the shunt inductors (L1, L3) at the cathode nodes would inherently shunt the DC voltage in the same manner as the presently claimed invention to provide proper functionality (Claim 1); the combination of the series diodes and the inductors (L1 and L3) forms a pi-network shape as can be seen in Fig. 6 (Claim 3); a first control signal (bias 1) is connected to the common anode node via a first inductor (L 2) which inherently allows the DC bias current to reach the common anode node and to prevent the RF signal

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from reaching the control port, especially since the bias is required to operate the diodes to function properly and the RF signal would inherently be blocked by the inductor (and allow DC voltage to pass) in a similar manner to the shunt inductors (L1 and L3) so that the signal will reach the output port properly (Claims 7 and 25); additional diodes (D3, D4) have their anodes connected to a second DC control port (Bias 2) (Claim 22); the DC voltage at the cathodes of the diodes (D3, D4) also inherently is constant in the same manner as the diodes (D1, D2) described above because of the shunt inductors (L3, L5) (Claim 23); and the network including inductors (L1 and L5) with the four diodes can also be considered in pi-configuration shape (see Fig. 6) (Claim 24).

Also note that the preamble of the claims recites an attenuator or attenuation. However, nothing in the body of the claims is unique to an attenuator or requires an attenuator. Therefore the description of an attenuator or attenuation in the preamble is not given any patentable weight.

***Allowable Subject Matter***

10. Claims 8-15 and 26-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 37-46 are allowed.

12. The following is a statement of reasons for the indication of allowable subject matter:

Regarding Claims 8-15 and 26-27, "A Low Distortion Pin Diode Switch Using Surface Mount Devices" (cited by applicant) does not teach that the second diode is coupled to a fourth diode in common cathode configuration to provide a second common cathode node.

Regarding Claims 37-46, "A Low Distortion Pin Diode Switch Using Surface Mount Devices" (cited by applicant) does not teach providing first and second attenuation control signal inputs coupled to respective anodes of diodes in combination with the cathode voltage of each diode having a substantially constant DC voltage.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kossor teaches a voltage variable attenuator with a microstrip network.

Hopfer teaches a variable microwave attenuator.

Abajian teaches a variable resistance attenuator.

Petitjean et al. teaches a variable attenuation device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen E. Jones whose telephone number is 703-305-0390. The examiner can normally be reached on Monday through Friday from 8 AM to 4 PM.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on 703-308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-6251 for regular communications and 703-308-6251 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Stephen Jones  
Patent Examiner  
Art Unit 2817

SEJ  
April 8, 2003